DOCKET NO.: 295882US0X PCT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: GROUP: 1793

Mitsuo TAKASHIMA, et al.

SERIAL NO: 10/591,475 EXAMINER: Shevin, Mark L.

FILED: September 1, 2006

FOR: HIGH- STRENGTH BOLT SUPERIOR IN DELAYED FRACTURE RESISTANCE AND RELAXATION RESISTANCE

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s). No more than five (5) pages are provided.

I am the attorney or agent of record.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.

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IN RE APPLICATION OF	:	
Mitsuo TAKASHIMA, et al.	:	GROUP ART UNIT: 1793
SERIAL NO: 10/591,475	:	
FILED: SEPTEMBER 1, 2006	:	EXAMINER: SHEVIN, MARK L.

FOR: HIGH- STRENGTH BOLT SUPERIOR IN DELAYED FRACTURE RESISTANCE AND RELAXATION RESISTANCE

ATTACHMENT IN SUPPORT OF PRE-APPEAL BRIEF REQUEST FOR REVIEW

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

The Examiner has erred by combining references which cannot be combined. Because the pending obviousness rejection is based upon an improper combination of references, the rejection itself is improper and should be withdrawn.

More specifically, the Namimura reference discloses a bolt formed by warm-forging. In fact, Namimura teaches away from cold-forging (it is difficult to form the bolt head by cold forging due to the high strength of the wire rod -- see, par. [0039]). Further, Namimura does not teach or suggest a bluing treatment.

Koike, in contrast, discloses cold-forging and a bluing treatment, and that these treatments are necessary to obtain a high strength bolt having excellent relaxation resistance. (See, par. [0020]-[0021]).

Thus, Namimura teaches warm-forging and no bluing treatment (and, in fact, teaches away from cold-forging), whereas Koike teaches cold-forging and bluing. No motivation would have existed to combine these disparate teachings of different forging processes. For at least this reason, the rejection based upon the combination of these references is improper and should be withdrawn.

Further, even if these references were properly combinable, the asserted combination of references would not yield the invention steel

For example, regarding chromium, Namimura teaches away from steel containing more than 0.5% Cr -- it teaches that Cr exceeding 0.5% reduces delayed fracture resistance and toughness. (See, par. [0020]). Koike is similarly fatally deficient because it teaches away from steel containing more than 0.5% Cr -- Koike teaches that Cr exceeding 0.5% does not further reduce proeutectoid cementite. (See, for example, pars. [0034]-[0035]). Thus, Koike would not motivate one of ordinary skill in the art to ignore Namimura's express teaching to use less than 0.5% Cr. In other words, the combination of these references would not lead to a steel product having the required Cr content and, thus, cannot constitute the basis for a proper rejection given that one of the required elements (Cr content) is lacking from their combination.

Further, regarding silicon, Namimura would lead one of ordinary skill in the art to steel preferably having 0.5% or less silicon. (See, par. [0018]). Similarly, Koike, at pars. [0021], [0025] and [0026], expressly limits Si content to 0.5%, particularly given that cold-forging will be performed. In this regard, Koike explains that "the excessive Si content is likely to lower the ductility as well as the cold heatability of the steel wire," and then indicates that preferred Si content is 0.1% or 0.05%. (Par. [0026]). Furthermore, comparative example F in Koike contains 0.89% Si. Table 3 (test no. 8) indicates that this sample "cracked," and thus was unacceptable. The clear teaching of Koike was that Si content greater than 0.5% was unacceptable and should not be used, particularly when cold heading is performed. Stated another way, Koike actually teaches away from cold heading when Si content is greater than 0.5%. The combination of these references would yield a steel having 0.5% silicon or less and, thus, cannot constitute the basis for a proper rejection given that one of the required elements (Si content) is lacking from their combination, particularly when cold heading is performed.

The tertiary references, Hijitaka and Stefayne, do not compensate for the fatal deficiencies above. Hijitaka relates to a different steel composition which will have superior relaxation resistance after bluing. Stefayne also relates to a different steel composition, and does not teach or suggest anything about relaxation resistance.

Nothing in any of these references would lead to cold forging/bluing of a high Si, high Cr content material. In fact, these references teach away from this invention.

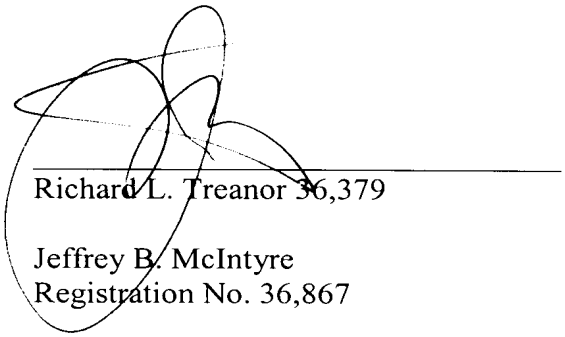
The pending claims all require, among other things, the presence of (1) 0.51-2.5% Cr; and (2) at least 1-3% Si; and (3) cold/forging bluing treatments. Thus, the pending claims cover those bolts having improved relaxation resistance properties, but exclude those bolts which do not (bolts containing less than 0.51% Cr, less than 1% Si and/or which do not undergo bluing treatments). By subjecting the bolt containing 1-3% Si to the bluing treatment, the relaxation resistance of the bolt is significantly improved (as compared to a bolt not subjected to bluing treatment and/or containing less than 0.55% Si). (See, pars. [0045] and [0046], and Fig. 4 of the present application). As explained at par. [0015] of the present specification, the required Si content of the present invention makes it possible to soften the surface by accelerating decarburization positively and to prevent cracking during bolt forging, even when Si content is increased.

Finally, Applicants intend to amend or delete claim 12 upon indication of allowable subject matter.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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